SHURE®

LEGENDARY
PERFORMANCE™

Conferencing and Discussion Systems

RP 6004 Repeater

USER GUIDE

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Important

Installation precautions

Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place exposed to direct sunlight, excessive dust or humidity, mechanical vibration or shock.

To avoid moisture condensations do not install the unit where the temperature may rise rapidly.

Compliance

The equipment is intended to be used in professional audio applications.

Note: This device is not intended to be connected directly to a public internet network.

EMC conformance to Environment E2: Commercial and Light Industrial.

Testing is based on the use of supplied and recommended cable types.

The use of other than shielded (screened) cable types may degrade EMC performance.

Changes or modifications not expressly approved by Shure Incorporated could void your authority to operate this equipment.

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Authorized under the verification provision of FCC Part 15B.

Please follow your regional recycling scheme for batteries, packaging, and electronic waste.

Information to the user

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the
- receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Cleaning

To keep the cabinet in its original condition, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use organic solvents such as thinners or abrasive cleaners since these will damage the cabinet.

Repacking

Save the original shipping cardboard box and packing material; they will become handy if you

ever have to ship the unit. For maximum protection, re-pack the unit as originally packed from the factory.

Warranty

The individual units in the DCS 6000 system are minimum covered by 24 months warranty against defects in materials or workmanship.

Your DCS 6000 Conference System

The DCS 6000 system

DCS 6000 Digital Conference System is a system to be used at meetings, where a number of people are addressing the 'Floor' in a structured manor. The audio from the Conference units can be heard in the built in loudspeakers in the units.

The system does also allow for simultaneous interpretation for international conferences where multiple languages are used.

To enable all participants to understand the proceedings, interpreters can simultaneously translate the speaker's language as required. These interpretations are distributed through the connected Conference units and delegates can select the language of their choice and listen to it through headphones.

DCS 6000 Digital Conference System comprises of one CU 61xx Central Unit and a number of Conference Units, Gooseneck Microphones and other accessories depending on the system configuration.

The DCS 6000 system used with CU 61xx has the following main features:

- Fully digital
- Excellent sound quality
- "State of the Art" fully digital integrated interpretation, discussion and voting system offering interpretation, language distribution, conference microphone and voting facilities with attendance check with Chip Card ™
- Digital transmission of audio from/to the Conference unit to/from the central unit using a unique digital DATA and AUDIO bus named DCS-LAN
- Control of up to 3800 conference units. This number does not include Channel Selectors, Repeaters etc. In practical use there are no limits for the number of Channel Selectors in a system
- Delegate and Interpreter units are powered and controlled by the CU 61xx Central Unit, which drives up to app. 50 units with the PS CU power supply
- EX 6010 Extension Unit or PS 6001 DCS-LAN Power Kit is available if more units are required
- Delayed switching on of power to the two DCS-LAN chains, to minimize the total 'in-rush' current on the Mains supply
- Designed for 31 interpreted channels and 8 open microphones
- Audio scrambling of the audio to avoid eavesdropping
- Designed in a standard 1HE 19" cabinet
- TCP/IP connection on CU 61xx for external operation of the system using a PC or control system such as AMX ® or Crestron ®
- Functionality on the CU 61xx depends on the Feature License uploaded into the unit
- Firmware in Delegate units, Interpreter Units, Central Units etc. is upgradeable
- Operated either stand alone or from a PC using the CU browser or using SW 6000 software
- Added functionality and comprehensive features provided by SW 6000 software package running on PC

The SW 6000 is an optional software package, which expands the functionality of the DCS 6000 system. The software runs on standard computer technology (Standard PC with Windows 7, Server 2008 etc.).

Main features of the SW 6000 are:

- Microphone management
- Mimic panel operation
- Interpretation management
- Voting management
- Message handling
- Agenda handling
- Data stored on SQL data base
- Web service interface available for easy links to external applications
- Multi language user interfaces
- Supports different User types with different priorities, user interfaces and control possibilities

System components

Central equipment etc.

CU 6105	Central Unit
CU 6110	Central Unit
EX 6010	Extension Unit
PS 6001	DCS-LAN Power Kit consisting of one PS CU and one PI 6000
PS CU	Power Supply
PI 6000	DCS-LAN Power Inserter
RC 6000	Redundancy Controller
AO 6004	Audio Output box
AO 6008	Audio Output box
RP 6004	Repeater for four chains
JB 6104	Junction Box with 4 outputs

Interpreter equipment

IS 6132 P	Interpreter Unit
LS 6132 P	Interpreter Loudspeaker

Conference units and Ch. selectors

DC 6990 P	Conference Unit (portable) with touch screen with two built-in channel selector, Chip-card and 5 voting buttons, configurable as Delegate, Dual Delegate or Chairman.
DC 6120 P	Conference Unit (portable)
DC 6190 P	Conference Unit (portable) with two built-in channel selectors
DM 6680 P	Conference Unit (portable) with voting
CM/DM 6080 F	Conference Unit (flush mounted) with built-in channel selectors
DM 6620 F	Conference Unit (flush mounted) with, Chip-card and 5 voting buttons
CM/DM 6680 F	Conference Unit (flush mounted) with one built-in channel selector, Chip-card and 5 voting buttons
MU 6040 C/D	Microphone Unit for use with FD/FC front plate with Loudspeaker, Microphone and Buttons. Available in Delegate (D) and Chairman (C) version
MU 6042 D	Dual Microphone Unit for use with FD/FC front plate with Loudspeaker, Microphone and two delegate Buttons
DV 6501 F	Voting Unit
AM 6040	Ambient Microphone Unit
CS 6340 FV/H	Channel Selector (flush mounted)

Accessories

In addition to the unit a number of accessories are available like:

- Storage Boxes
- GM 6523 Gooseneck Microphone, 40 cm
- GM 6524 Gooseneck Microphone, 50 cm
- GM 6525 Gooseneck Microphone, 63 cm
- DH 6021 Delegate Headphone
- DH 6223 Stethoscope Headphone
- DH 6225 Ear Clip Headphone

For detailed instruction in how to use the above units, please refer to the User Manuals for the relevant products.

Operating instructions

RP 6004 Repeater

General description

The RP 6004 Repeater provides repeater and splitter functionality for the DCS 6000 system.

One CU 6010 Central Unit is needed in each DCS 6000 system, however for expansion of the system the RP 6004 Repeater is suitable.

The RP 6004 consist of the following main parts:

- Repeater board with 4 individual repeated outputs.

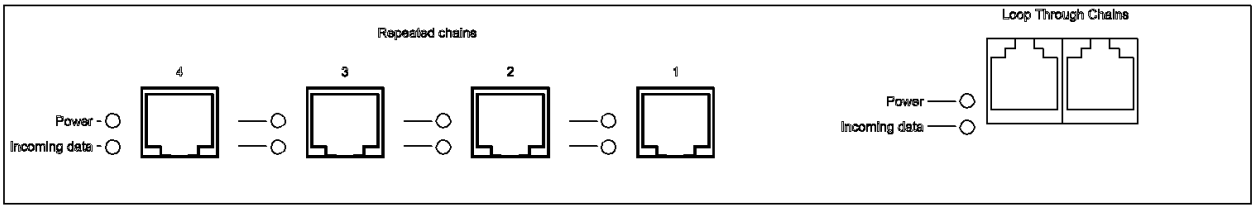
Features

The main features of the RP 6004 Repeater are:

- 4 outputs for connection to Delegate Units, Interpreter Units etc.
- Loop through connectors for connecting additional RP 6004 or other units, which are part of the DCS 6000 system.
- Delayed switching on of power to the four chains, to minimise the total 'switch-on' current on the Mains supply.
- Designed in compact cabinet for easy installing remotely.
- Optional 19" brackets.

User Controls, indications & connectors

Front plate layout



Front plate controls

The RP 6004 Repeater does not feature any controls or displays, however the following indications and connectors are available:

Loop through connectors

RJ45 connector, 2 pieces

DCS-LAN connectors. Used for connection to one of the chain connector on the CU 6010 for repeating the DCS-LAN chain.

The second connector is for connection to other units with DCS-LAN connector, such as more RP 6004.

The loop through connectors has auto-termination.

Repeated Chain 1, 2, 3 & 4

RJ45 connector, 4 pieces

DCS-LAN connectors. Used for connection to DM/CM6xxx, CS6032, EX6010, AO6008, JB 6002/4 or IS6032 Interpreter Sets.

Unused repeated chains do not need termination

Power LED

Those LED light up when Power is available on the connector next to the LED

Incoming data LED

Those LED flashes, when the unit receives incoming data from connected units on the connector next to the LED.

System design

There are no settings to be done on the RP 6004 Repeater.

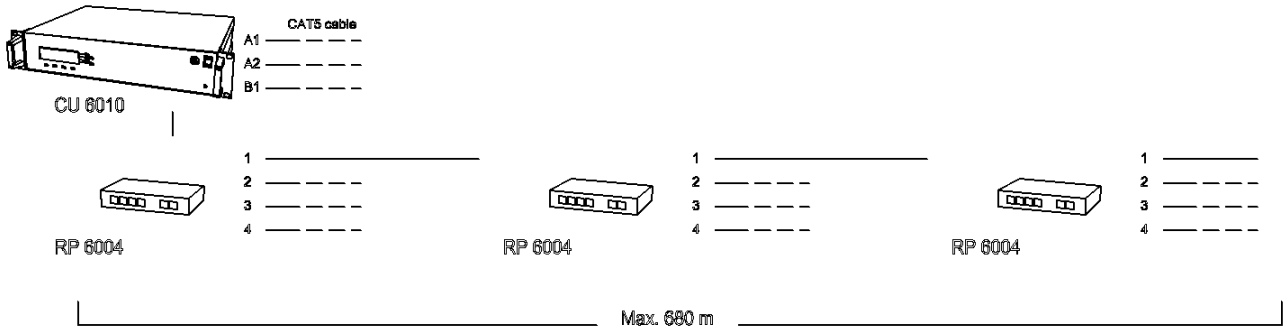
However it is important to observe, that the unit is only repeating one of the chains on the CU 6010 Central Unit.

And as so, the specification, which applies to each of the chain outputs on the CU 6010 Central Units does also apply to all the repeated outputs in total.

So when designing a system to incorporate RP 6004 Repeaters, bear in mind, that as the RP 6004 Repeater is repeating only one of the four outputs A (A1 or A2) or B (B1 or B2) the max. number of languages configured on the four outputs (1, 2, 3 and 4) is totally max. 16.

If more languages are required, Interpreter sets for those languages have to be connected either to another RP 6004 Repeater, which is connected to the other of the two chains (A or B) on the CU 6010, or directly to the other of the two chains (A or B) on a CU 6010.

'Repeated chain' connector



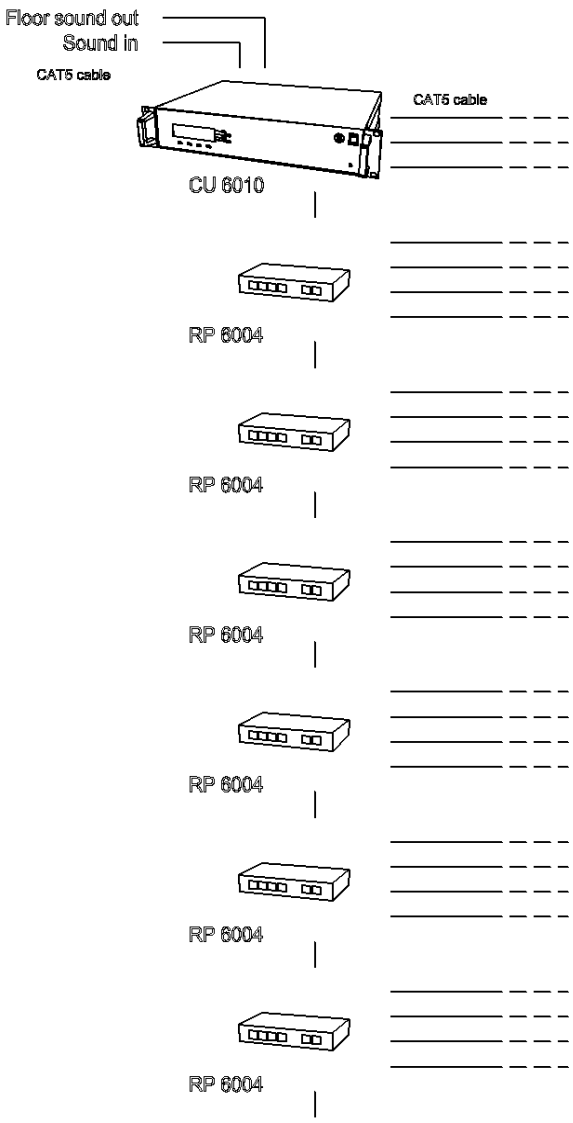
When connecting the RP 6004 Repeaters to the CU 6010 the first RP 6004 is connected to the 'Loop through' connector. The next RP 6004 Repeaters can be connected to either the other 'Loop through' connector or to one of the 'Repeated out' connectors. If using the 'Repeated' outputs maximum two more RP 6004 Repeaters can be connected extending the maximum cable length in one chain up to 650 m. The above schematic is showing the connection using the ''Repeated out' connectors.

'Loop through' connector

When connecting a number of RP 6004 Repeaters to the CU 6010 an almost unlimited number of RP 6004 can be connected by using the 'Loop through' connector.

The practical limitation is the maximum cable length in one chain, which is 200 m and supply of power to the RP 6004 repeaters. The following schematic is showing the connections using the 'Loop through' connectors.

A combination of the two methods of connection can be seen in the 'CU 6010 User Manual'.



System Setup

General guidelines

Connect the RP 6004 to the various units using Cat 5 FTP or STP cables. Please observe the following guide lines:

- Maximum cable length in one chain is 200 m without repeater. This includes interconnection cables between the units. The max. usable cable length depends on the units connected and length of feeding cables etc.
- Maximum cable length in one chain when using repeaters is 650 m.
- As the RP 6004 Repeater is repeating only one of the four outputs A (A1 or A2) or B (B1 or B2) the max. number of languages configured on the four outputs (1, 2, 3 and 4) is totally max. 16.

  If more languages are required, Interpreter sets for those languages have to be divided between both chains (A or B) on the CU 6010. Normally the languages are supposed to be divided equally on chains A (A1 or A2) and B (B1 or B2).
- If the last unit in one chain is a CS 6032 Channel Selector, this unit has to be terminated with an external termination, as the CS 6032 does not have an internal termination.

Built into 19” Racks

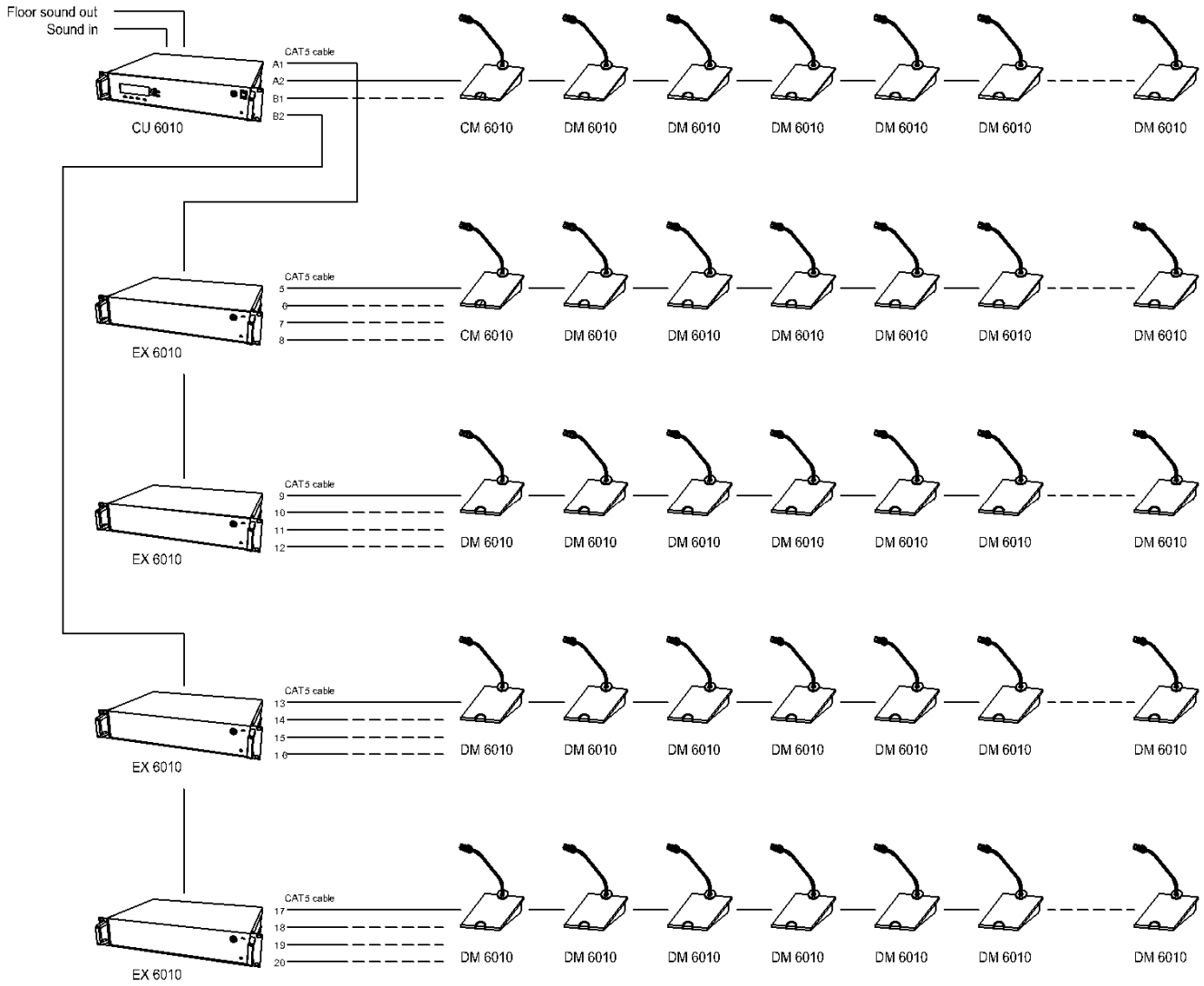
The optional 19”-Brackets allow the unit to be mounted in a rack with either the front (connector side) or the blank backside to the front side of the rack. The height is 1HU and allows units to be stacked using only 44mm rack height.

Can also be mounted at the back of the rack cabinet freeing the space at the front of the rack. The cabinet shall then be deep enough to allow this.

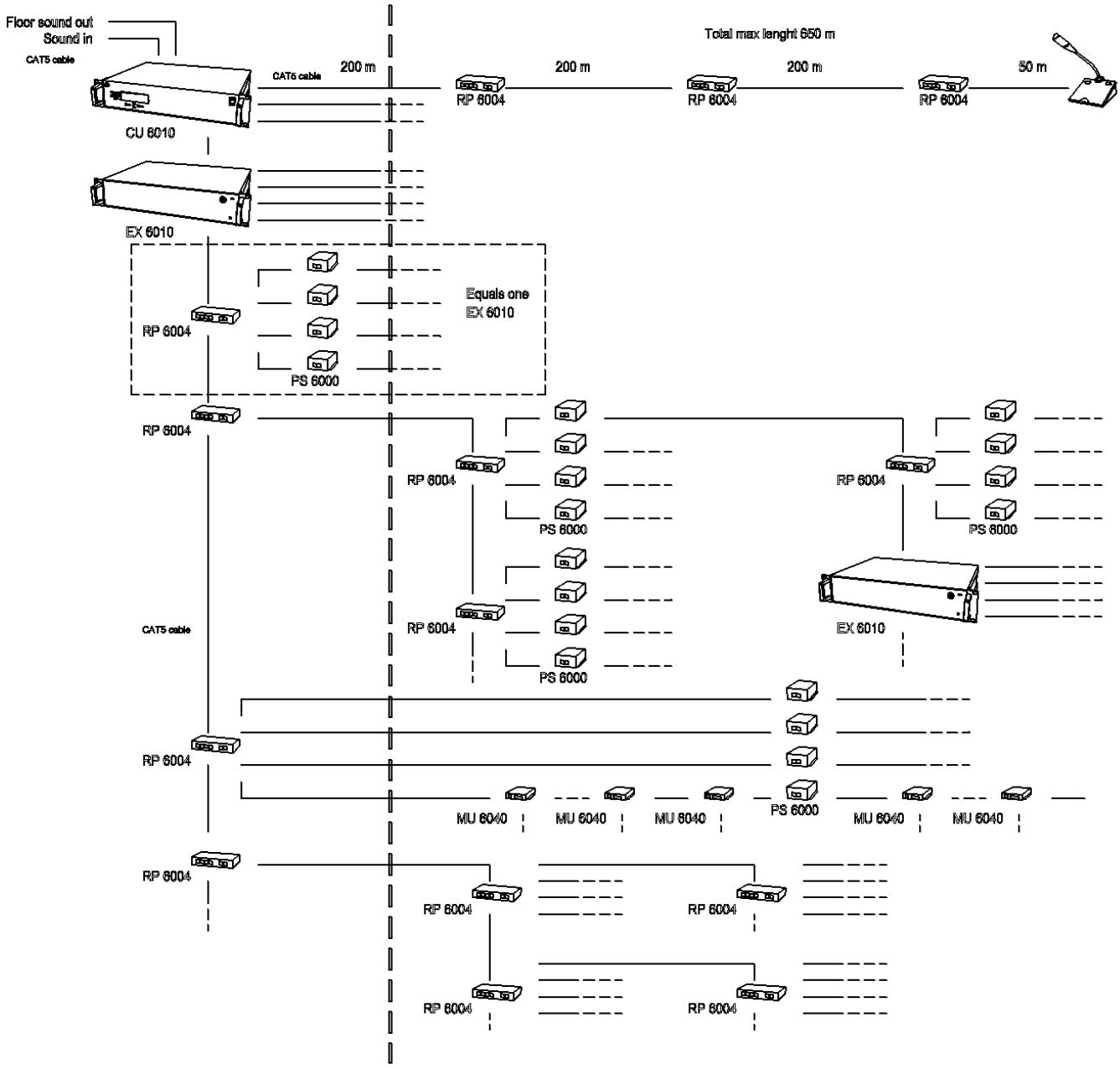
Typical schematics

The following schematics are showing various configurations:

Large sized conference microphone system



Various configurations with RP 6004 Repeater and PS 6000 Power Supply



Technical Specifications

System Specification

Power consumption ..... max. 10W

Temperature to guarantee specified performance

..... 5 Deg C. to 40 Deg C. (35 to 80% humidity)

Storage temperature

..... -20 Deg C. to 60 Deg C. (10 to 80% humidity)

Weight .....1 kg

Dimensions (W x H x D) .....264 x 42 x 128 mm

Dimensions with 19" brackets..482,6 x 44 x 128 mm

Connectors

DCS-LAN loop through..... 2 pieces RJ45

DCS-LAN repeated output ..... 4 pieces RJ45

Specifications are subject to change without notice.

Connection Details

DCS-LAN Chain

The DCS 6000 system uses shielded Cat5e, Cat6 or Cat7 F/UTP or U/FTP cables with shielded RJ45 connectors.

EIA 568-B wiring shall be used.

Important: The names of Cat5/6/7 cable type have changed.

Old name	New name
FTP	**F/UTP**
STP	**U/FTP**
UTP	**U/UTP**

Important: Use only F/UTP or U/FTP (shielded) cables and shielded RJ45 connectors and not U/UTP cable, which are unshielded.

How to wire a Cat5e (EIA 568-B) cable to a RJ45 con.:

Pin	Function	Connector #1	Connector #2
1	**In-going +**	**ORG/WHT**	**ORG/WHT**
2	**In-going -**	**ORG**	**ORG**
3	**+48V**	**GRN/WHT**	**GRN/WHT**
4	**0V**	**BLU**	**BLU**
5	**0V**	**BLU/WHT**	**BLU/WHT**
6	**+48V**	**GRN**	**GRN**
7	**Outgoing -**	**BRN/WHT**	**BRN/WHT**
8	**Outgoing +**	**BRN**	**BRN**

Important: If other color codes are used then the four pairs are connected as follows:

Pair 2: Pin 1 & 2
Pair 3: Pin 3 & 6
Pair 1: Pin 4 & 5
Pair 4: Pin 7 & 8

The phase of the pairs must be correct and the wiring spec. as stated in Cat5e (EIA 568-B) have to be followed.

Note: Cat6 and Cat7 cables can normally only be terminated in sockets (female) and not in cable plugs.

Cat6 and Cat7 can thus only be used for feeding cables terminating in wall outlets or patch panels.

Accessories

Cat5e Connection Cables (AWG24)

EC 6001-0.5 ..... Connection Cable 0.5 m

EC 6001-01 ..... Connection Cable 1 m

EC 6001-02 ..... Connection Cable 2 m

EC 6001-05 .....Connection Cable 5 m

EC 6001-10 .....Connection Cable 10 m

EC 6001-20 .....Connection Cable 20 m

EC 6001-50 .....Connection Cable 50 m

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